June 1966

EMO

Manitoba Flood 1966

Reflections on Civil Defence and Survival

OEP's Office of Analysis and Research

Effects of Disaster on Human Organization

EMO Taking Root

C E M O

EMO NATIONAL DIGEST

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The EMO NATIONAL DIGEST publishes six editions annually to provide current information on a broad range of subjects dealing with civil emergency planning. The magazine is published in English and French and may be obtained by writing to the Canada Emergency Measures Organization, Centennial Tower, 400 Laurier Ave. West, Ottawa 4, Ont.

In addition to publishing articles which reflect Canadian Government policy the Digest may also publish articles by private individuals on subjects of current interest to the emergency measures programme. The views of these contributors are not necessarily subcribed to by the Federal Government.

Director General: C. R. PATTERSON *Editor:* A. M. STRATON

ROGER DUHAMEL, F.R.S.C.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1966

MANITOBA FLOOD 1966

The following article was extracted from a report to Canada Emergency Measures Organization by Mr. I. H. Deyman, Federal Regional Director, Canada EMO, in the Province of Manitoba.

Canada Emergency Measures Organization, through its Regional Director in Manitoba was closely involved in preparations to counter the threatened flooding of the Red River in Southern Manitoba during March and April, 1966. National resources were made available to supplement and assist actions being taken by the Province of Manitoba from the time warning of the approach of rising waters became evident.

Using as direction "Responsibilities within Federal EMO for Peacetime Disasters" issued by Canada Emergency Measures Organization on October 8, 1965, the Manitoba regional office had made arrangements for earliest possible flood threat information from the Flood Forecast Committee of the Province.

Immediately following the first meeting of this Committee on February 24, 1966, Canada EMO was informed of developments. At the same time joint consultation was undertaken with the Provincial Co-ordinator of Manitoba EMO with respect to probable needs for federal support to the Province. A second meeting was scheduled for March 15, 1966 but because of ominous reports from U.S. sources it was moved ahead to March 10. That day, on advice of the Regional Meteorologist, Canada EMO was informed that Provincial Premier Dufferin Roblin proposed to call a meeting for March 15, 1966 to organize emergency services in accordance with the Manitoba Flood Fighting Plan.

Flood Control Headquarters—Authority and Direction

As a result of the gravity of the Flood Forecast Committee's report on March 10, 1966, the Premier advanced to the evening of Friday, March 11, 1966 his proposed meeting to organize emergency services. At this meeting he outlined expected departmental action and directed Manitoba EMO to produce a 1966 Flood Plan and Operation Order. Establishment of Flood Control Headquarters in the Legislative Building, Winnipeg and at Emerson and Morris, after the pattern of those developed in 1965 Flood Threat, was ordered.

Flood Control Headquarters—Organization

Over the weekend of March 12-13, 1966, Flood Operation Order No. 1 was developed for review by the Premier. With only minor changes it was approved on March 14, 1966. This Order was the work of Manitoba EMO personnel with assistance of the Assistant Regional Director, Canada EMO (Man.). Figure 1 shows the layout of the Flood Control Headquarters in the Legislative Building and Figure 2, the command and control structure for all operations. (Minor changes were made in the layout depicted at Figure 1 but the constituent departments and agencies remained the same.)

Because Manitoba EMO has only eight full-time officers their direct responsibilities were centered in Winnipeg Flood Control Headquarters and their own offices. At Morris and Emerson, south on the Red River, Flood Control Co-ordinators (both previously employed on identical tasks in 1965) were appointed from the Department of Agriculture and Conservation. The local committees were headed by the Mayors, each with the Municipal EMO Co-ordinator as "anchor man" on the Headquarters Control Desk. Other civic officials and emergency services officers filled out the staff. Subsequently, as the military moved in, an Army Liaison Officer was added.

Communications included phone link and Manitoba EMO radios working direct to Flood Control Headquarters, Winnipeg. As the flood moved up from the United States other headquarters were established at St. Jean de Baptiste and St. Pierre. These followed the pattern of those at Morris and Emerson and were similarly equipped.

Public Information—Policy, Programme and Procedure

1966 Flood Operation Order No. 1 delegated responsibility for public information to the Provincial Director of Information Services. The same day as its issue, however, the Premier announced that all public information would be provided by or released through him. Throughout the entire flood period this policy was adhered to with the Minister of Agriculture substituting in the absence of the Premier.

As arranged in 1965 the Canadian Broadcasting Corporation provided the staff and equipment for an emergency broadcast studio, both radio and TV, in Flood Control Headquarters. At any time this installation was capable of providing network feed to all radio and TV stations in Manitoba and in fact did on many occasions. In addition to programming from the Headquarters, the broadcast system picked up voice radio reports of Flood Controllers at Emerson, Morris, and other municipal headquarters and disseminated them over the emergency network. Each morning at 10 a.m., the Premier held a Flood Control Committee meeting in the Cabinet Room. These early developed a

standard pattern and were the subject of a daily report by this office to Canada EMO, Ottawa. Immediately following this meeting the Premier held a press conference for all local news media, so that immediate information was available for dissemination in Manitoba. A direct teletype link from Flood Control Headquarters to the local bureau of Canadian Press provided, as aside from CBC's normal national news service, early information for national distribution.

Virtually all news during the flood period was originated, as directed, by the Premier or his designate. Local "spot" news of Metro Winnipeg's member municipalities affected were provided by Mayors or their designates. The National Employment Service was provided with generous air time by radio stations to appeal for diking labour.

Federal and Benevolent Organizations

From the origin of action and in fact before, Canada EMO (Man.) was involved and accepted as a member of the Flood Control Committee team. The precedent had been established in 1965. From the outset this office represented federal civilian departments and

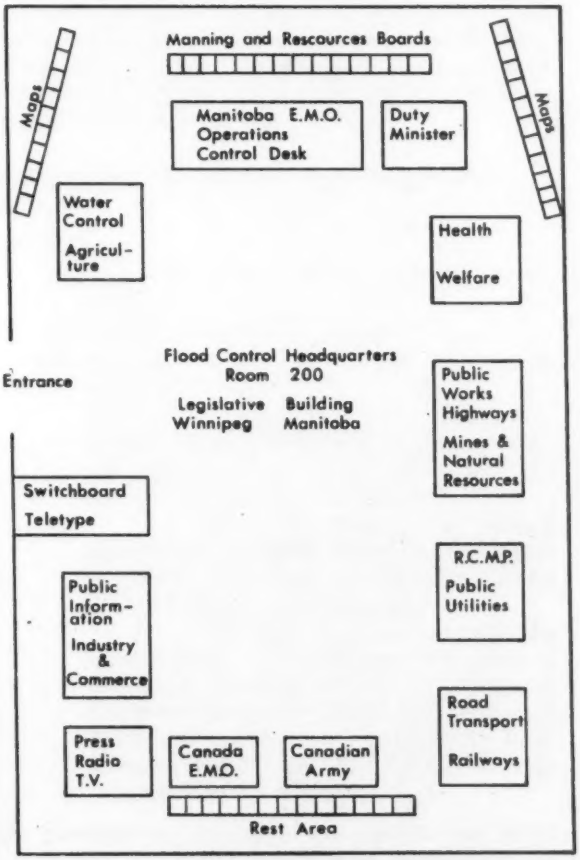


FIGURE 1

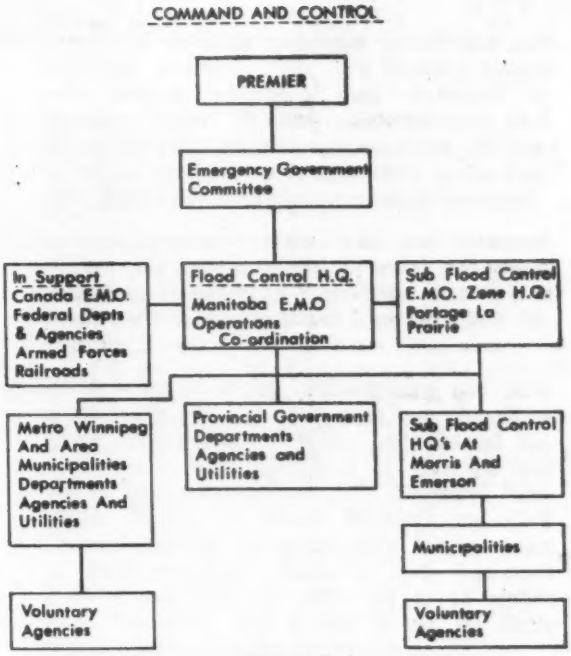


FIGURE 2

agencies on the Flood Control Committee. The local Acting Commander, Manitoba District, Canadian Army, represented Department of National Defence services.

Canada EMO (Man.) was provided a desk at Flood Control Headquarters and manned it through the duty hours prescribed for the period of its existence. To April 4, the Assistant Regional Director served at Flood Control Headquarters through normal duty hours. During this period the Regional Director and his assistant were available to the Headquarters Control Desk at their homes on a 24-hour basis. On extension of the Headquarters hours to full manning the "shift" cycle involved the Assistant Regional Director and full-time Emergency Planning Officers of Unemployment Insurance Commission/National Employment Service, Department of Transport; and Department of Public Works whose services had been pre-arranged by negotiation with their respective Regional Directors. The Regional Director continued to serve at his Regional Office, with frequent visits to Flood Control Headquarters and other local federal offices. He provided the link to Canada EMO, Ottawa, interdepartmental and federal/provincial liaison and co-ordination, and conducting normal regional office activities as possible.

As mentioned, action to alert federal departments and agencies was taken in early March. These discussions covered the principal locally represented departments. In addition, they involved other departments, notably Water Resources Branch, Department of

Northern Affairs and National Resources (from whom we sought information) and the Indian Affairs Branch, Department of Citizenship and Immigration, whom we brought together with Indian Health Services, Department of National Health and Welfare, to anticipate a Provincial request for plans to evacuate the Rousseau Indian Reserve near Morris.

The Department of National Defence, as mentioned earlier, participated from the Premier's first committee meeting as did the R.C.M. Police in their role as contracted provincial police. Subsequent events brought into activity, through this office, Central Mortgage and Housing Corporation and the Post Office. Direct approach by Provincial officials involved the Department of Agriculture, Canadian National Railways, the Canadian Wheat Board, and finally, Department of Veterans Affairs for use of local DVA hospitals by Metro Winnipeg Civil Defence.

Independent social service agencies and benevolent organizations were recruited and used, in the main, by Metro Winnipeg Civil Defence.

The Mennonite Disaster Service has units in many Southern Manitoba towns including Altona, Winkler, Steinbach and others. In many cases the groups include high school students. This organization provided much diking labour in flood affected towns south of Morris and provided assistance to rural residents in evacuation of stock and farm equipment.

Major Equipment and Resources—Types and Sources

(*a*) *Diking*

(i) *Clay and earth*. From provincial "borrow" pits.

(ii) *Sand*. From provincial sand pits.

(iii) *Sandbags*. From all available sources in Manitoba.

From two manufacturers in Minneapolis, Minn., and one in Des Moines, Iowa. (duty was waived in view of the fact that total Canadian production was committed).

One large shipment of military pattern bags (275,000) by RCAF Transport Command airlift from the Army's 26 Central Ordnance Depot, Cobourg, Ont.

One large single order arranged by Canada EMO (Man.) through the Office of Emergency Planning and the U.S. Corps of Engineers from their stocks and sources in Minneapolis. These were delivered by truck transport at the time of a critical shortage over the Easter weekend.

(*b*) *Earth-moving equipment* and tandem axle dump trucks. All available provincial government and municipal resources augmented by hired equipment from many points in the province.

(*c*) *Pumps*—All available provincial government and municipal resources. Over one hundred pumps from Alberta government and municipal resources. Prairie Farmers Rehabilitation Act (Manitoba and Saskatchewan) resources. All rental pumps available from contractors in the local area. Pumps from Ontario Government resources.

(*d*) *Army Equipment*—Trucks, load and personnel carriers. Helicopters (Vertol 25 place and "jeep" three place types), L-19 observation aircraft, four amphibious trucks and two Landing Craft Infantry.

(*e*) *Communications*—Army self-sustaining and command equipment for their own use. Manitoba EMO (Department of Mines and Natural Resources net) fixed equipment at Emerson and Morris plus many mobile units. Manitoba Telephone Service. In Metro Winnipeg the Civil Defence Organization worked from a base station in their permanent offices to both Reception Centres established by them and to 14 mobile units. Capability also existed to use the entire transit system and police emergency nets.

(*f*) *Boats*—All provincial government boats of suitable type. Eight R.C.M. Police boats. Many civilian craft, locally owned.

(*g*) *Railroads*—Grain and cattle cars to a total, it is understood, of close to 1,200 for evacuation. Scores of cars suitable for furniture storage, restaurants, living quarters, business offices and tank cars for fresh water.

(*h*) *Food Stuff*—Purchased chiefly from local sources supplemented by trucked supply from Winnipeg.

(*j*) *Manpower*—Service personnel (chiefly Army) totalling approximately 1,300 were committed to diking and associated services at the peak, plus a further sizable staff of support personnel in static units (RCASC, RCOC, RCEME, etc.). Some service militia and reserves were used over Easter weekend in Metro Winnipeg.

All appropriate provincial and municipal personnel possible. Civilian labour recruited in various localities paid at going municipal rates plus some unpaid volunteer labour.

Administration and Finance—Policy and Procedure

Purchasing was done through normal procedures and all departments and agencies of the provincial government were enjoined by the Premier to establish, from the beginning, separate ledgers for the recording of costs of the flood fighting operation. This direction was given on March 14 on occasion of review of the operation order.

On March 15, 1966, the Premier held a meeting with mayors, reeves and other officials of all municipalities likely to be affected by the flood (based on the probability that 1950 levels would exist). The operation order was reviewed with them and they too were directed to establish a completely separate series of accounts for the recording of flood costs. Advisory assistance was offered by the Province through its Treasury Department which had been made responsible "to establish and supervise the necessary procedures for appropriating and accounting for funds provided for flood-fighting operations."

The so-called "open" ledger accounts, in the case of provincial departments and agencies, did not represent charges against their normal allocation of funds and bills were paid from Treasury's General Fund. In the case of municipalities, essential disbursements were made from funds separate from their normal departmental allotments—either their Reserve Account or from special bank loan accounts guaranteed by the Province.

Cost Settlement—Arrangements

With the 1950 Flood as background and precedent it was early anticipated that costs would be in the millions of dollars and that a federal/provincial cost-sharing agreement would be sought. It was stated that the matter was being discussed with the appropriate Federal Minister and discussions were started by telephone with Ottawa on February 14, 1966.

March 17-18 saw a visit by the Director General, Canada EMO, to Winnipeg for discussions with the Premier and the Minister in charge of Provincial EMO.

Subsequent developments led to the visit of the Honourable C. M. Drury, Minister of Industry and Honourable Roger Teillet, Minister of Veterans' Affairs, (whose constituency was flood threatened) along with the Director General, Canada EMO, and a party of senior federal officials to Winnipeg on March 30-31. Unfortunately the Premier was not available because of illness but discussions between federal ministers and officers and Honourable George Hutton and Honourable M. B. Steinkopf of Manitoba, took place.

Through the period of advance of the flood from the U.S. border no further federal/provincial negotiations were undertaken but on April 11, 1966, flood crest forecasts were revised downward and flood fighting assumed a maintenance and watching posture. The Premier immediately sought a meeting with the Prime Minister. It took place in Ottawa late on April 12 and resulted in an announcement of 75% federal assistance in flood-fighting with other costs to be shared under a formula to be negotiated separately. Talks between the Premier and the Honourable C. M. Drury and the Honourable Mitchell Sharp, Minister of Finance, took place the day following.

A subsequent visit to Ottawa by Premier Roblin on April 21-22 resulted in joint understandings and agreements which permitted the Province to produce a provincial draft cost settlement schedule on which to base subsequent discussions.

On April 26 the Premier announced the constitution of a 1966 Provincial Flood Financial Committee comprised of:

> Deputy Minister, Department of Mines and Natural Resources—Chairman
> Assistant Deputy Minister, Provincial Treasury
> Assistant Director, Water Resources Branch, Department of Agriculture

The Chairman was Deputy Provincial Treasurer at the time of the 1950 Flood and the Department of Agriculture member was the Chief Diking Officer, 1966. This Committee will handle the Provincial side of negotiations of financial settlement with a counterpart federal committee chaired by Mr. E. W. Laver, Director of Planning, Canada EMO.

At the same time the Premier announced the appointment of a Red River Valley Board to be responsible for estimating compensation for damage to private property.

Ultimate settlement is expected to be resolved over an extended period. In the meantime the Government of Manitoba is prepared to make advance interim payments to municipalities experiencing financial difficulties.

Liaison—Federal/Provincial/Municipal and Cross-Border

FEDERAL

As mentioned, earliest advice on an immediate basis, was passed Canada EMO by the Regional Office (Man.) as events transpired. Subsequently, a pattern evolved for passage of information daily, as follows:

(*a*) 8:15 am — Telephone sitrep—Regional Director to Assistant Director, Programme Implementation

(*b*) 11:30 am — Telephone sitrep—Regional Director to Assistant Director, Programme Implementation
(Immediately following Premier's daily Flood Control Committee Meeting).

(*c*) 1:00 pm — Message sitrep confirming telephone sitrep.

(*d*) 4:00 pm — Daily written report, log sheets, forecast and diking information sheets and sundry documents acquired during the day.

(*e*) — Supplementary telephone calls in regard to special or critical events to the Director General and Assistant Director, Programme Implementation, either at office or home.

This routine was followed from April 6-18, 1966, after which information was passed on by routine message.

Local federal department and agency liaison was initiated early by the Regional Director and subsequent to the establishment of Flood Control Headquarters was carried out by both the Assistant Regional Director and the Regional Director. Several of the most active federal departments were represented at the Headquarters; viz., Emergency Welfare Services, Department of National Defence, Canadian Broadcasting Corporation, Department of Transport, Department of Public Works and the Unemployment Insurance Commission/National Employment Service whose emergency planning officers were "seconded" to Canada EMO (Man.) for the duration of the Headquarters existence. Where direct joint federal/provincial action occurred without reference to Canada EMO (Man.) we were able to keep informed through internal liason with provincial agencies at the Headquarters. Such action involved Department of National Defence, Canadian National Railways, Canadian Wheat Board and R.C.M. Police.

PROVINCIAL

Closest liaison between Manitoba EMO and Canada EMO (Man.) exists as a day-in day-out fact of our respective continuing operations. Before, during and since the 1966 Flood our efforts have been directed almost completely to a single specific task with total unanimity of purpose. By reason of Canada EMO (Man.) representation at the Flood Control Headquarters and as an observer member of the Premier's Flood Control Committee, we were afforded the means of constant awareness of action of all provincial departments and agencies, and they of ours. Our identity and purpose were recognized and accepted by the Premier, the Ministers, senior officials and all other provincial personnel concerned.

MUNICIPAL

Little requirement existed for federal/municipal liaison except for special matters. Where need arose, as in the case of Central Mortgage and Housing Corporation offer of emergency housing for Metro Winnipeg evacuees, such liaison was with the knowledge of Manitoba EMO. Information on municipal activities in the valley, both for flood beleaguered towns and those assigned reception roles was constantly available at the Headquarters on data boards maintained by Manitoba EMO Control. In the case of Metro Winnipeg, the Controller of Civil Defence was in daily attendance at the Premier's Flood Committee meeting and liaison was maintained, in addition, by visits to their two reception centres and occasional telephone conversations with the Deputy Controller at their local Headquarters.

CROSS-BORDER

Direct liaison with Director of Civil Defense, North Dakota, was established by a telephone call from him with general information on the flood on March 25, 1966. There were further conversations on April 1 and 11 with respect to possible Canada EMO observer participation in joint U.S. Federal/State/Municipal meetings at Grand Forks. Other contacts on April 5-6, were with respect to the availability of pumps for use in Manitoba as water subsided in North Dakota.

On April 6, the Regional Director, Office of Civil Defense, Region 6, at Denver telephoned with an offer of support. Because of a critical sandbag shortage at that time and the prospect of a large volunteer diking labour force being available during the long Easter weekend and following week, this office sought through April 7-8, assistance in the location, and arrangements for supply of sandbags from stocks in the upper (U.S.) reaches of the Red River, where the need had lessened.

Observation

To say that no problems existed or occurred would be ludicrous. However, by virtue of early warning, an orderly build-up based on complete and detailed intelligence, and knowledgeable and experienced staffs working in conformity with a tested plan and the 1966 Flood Operation Order, surprisingly few "flaps" developed. Those that did occur were handled with competence and despatch by the tremendous, but commonplace, total co-operation of all concerned. An *esprit de corps* existed at all levels from Ministers to the troops and labour on the dikes. Morale of high order was sustained throughout the emergency.

Lest the foregoing smack of smugness it must be said that had flood crests exceeded rather than been less than forecast predictions to April 11, 1966, different circumstances may have obtained. Moreover, the extended period of the emergency provided time for the anticipation of problems and eased their resolution.

Résumé of Activities
Federal Departments and Agencies
Manitoba Flood 1966

Department of Agriculture
(Prairie Farm Rehabilitation Administration)

(*a*) Community pasturage allotment and control—for stock removed from the flood-threatened area.

(*b*) Gathering together of, and release on request to Provincial authorities, of PFRC pumps—2" and over.

Canadian Broadcasting Corporation

(*a*) Immediate establishment of a communications centre in Room 200 of the Legislature (Flood Control HQ) as the emergency communications authority for Manitoba. Supplied official statements of government spokesman to all Manitoba radio and television stations as required on a 24-hour-a-day basis.

(*b*) Established and operated a direct teletype to the Canadian Press Winnipeg Bureau for all Canada dissemination of Public Information on Flood.

(*c*) Broad radio and television coverage of the flood through normal Corporation facilities.

Canadian National Railways

(*a*) Crash provision of rolling stock for evacuation of stock, grain, seed, fertilizer, goods and persons.

(*b*) Provision of box cars at towns for furniture storage, living accommodation, commercial storage, restaurants, post offices, as well as water in tank cars, etc.

(*c*) Emergency maintenance of right-of-ways until impossible.

Canadian Wheat Board

(*a*) By co-operating with the Provincial Department of Agriculture, the Board of Grain Commissioners and the Railroads enabled the movement of grain and seed grain in flood-threatened areas to safety. As a result, to the knowledge of the Canadian Wheat Board, no grain anywhere in Southern Manitoba was flood spoiled or lost.

(*b*) By revision of quotas enabled the disposal of grain by farmer owners up to the highest quota level established anywhere in Western Canada. In addition the Board has granted permission to leave "over quota" grain in the country elevators where stored for safety and will require removal by farmer owners in only those quantities which are not covered by quotas established as of 15 June 1966.

Department of Citizenship and Immigration
(Indian Affairs Branch)

(*a*) Counselled and prepared the Roseau Indian Band preliminary to the need for their evacuation.

(*b*) Assisted Indian Health Services and Provincial Welfare authorities in the plan for an evacuation of the band to MacDonald, Man.

(*c*) Stationed an Indian Affairs officer at MacDonald to work with the Provincial Welfare Camp Director and arrange for details of camp administration and protection (duty rosters, pickets, etc.)

(*d*) Currently co-operating with Indian Health Services Public Health Engineers in examination of the Reserve in assessment of sanitary and rehabilitation problems to be dealt with in respect to ultimate re-occupation of the band.

(*e*) Continued liaison with Provincial Welfare and Indian Health Service officials until rehabilitation of the band—probably 1 month to 6 weeks hence.

Department of Defence Production

(*a*) In addition to stepped-up pace of purchases of normal re-supply items for Army, special purchase and delivery arrangements had to be made, particularly for gasoline in the Valley towns where the army and its vehicles were deployed.

(*b*) Some "odd" items were purchased on a special basis for emergency feeding, e.g., plastic cups, coffee makers, etc.

Department of National Defence

(*a*) At the request of Provincial authorities supplied men, equipment, and supplies throughout the flooded and flood-threatened areas of the Province.

(*b*) Maintained and staffed a desk in the Flood Control HQ during the existence of that organization.

(*c*) Provided an air lift service within the Province and the flood area using Army helicopters.

(*d*) Provided air-lift service on outside-the-Province requirements using RCAF Transport Command equipment.

(*e*) In addition to extended use of regular troops, RCN, Army, RCAF; supplied, over the Easter weekend, the services of military reserves in Winnipeg on diking operations.

Department of Public Works

(*a*) Co-ordinated establishment of a reserve of Department of Public Works power pumps for use of the Province.

(*b*) Provided their Emergency Planning Officer in support of the maintenance, on a shift basis, of a Canada EMO desk in Flood Control HQ.

Department of Transport

(*a*) Supplied constant, extraordinary, meteorological report services to appropriate Provincial agencies. (The Department of Transport Regional Meteorologist is a member of the Manitoba Flood Forecast Committee). Arranged concentrated and specific interchange of Met services information with U.S. Weather Bureau at Kansas City—with reference to the entire watershed of the Red River.

(*b*) Provided their Emergency Planning Officer in support of the maintenance, on a shift basis, of a Canada EMO desk in Flood Control HQ.

(*c*) Promulgated Civil Aviation Regulations restrictions on the use of private aircraft in the flooded zone—10 miles each side of the Red River from Winnipeg to the U.S. Border—and did intermittent patrols in Department of Transport aircraft for enforcement purposes.

(*d*) Arranged stand-to of Department of Transport aircraft and crews to supplement the services of military and Manitoba Government Air Services aircraft.

Department of Veterans' Affairs

(*a*) The Minister of the Department maintained constant liaison with Provincial and Canada EMO officers with regard to the flood situation. A large part of Mr. Teillet's riding was affected.

(*b*) Through co-operation and collaboration with provincial and municipal health authorities accepted at Deer Lodge Hospital all "iron-lung" patients in Metro Winnipeg to ensure their safety and comfort in event of disastrous flood conditions.

(*c*) Made early distribution of veterans' allowance and pension cheques to alleviate possible hardship on evacuee recipients.

Emergency Measures Organization

(*a*) Co-ordinated support of federal departments and agencies, but for Department of National Defence, throughout the flood and threatened flood period.

(*b*) Maintained a flood information service to all federal departments and agencies at the Ottawa and Regional (Manitoba) levels.

(*c*) Maintained a Canada EMO desk at Flood Control HQ in the Manitoba Legislature to provide on the spot advisory and co-ordination services—Federal/Provincial.

Department of Finance

(*a*) Provided advisory guidance to federal depts and agencies, particularly Department of National Defence, with respect to establishment and control of accounts of materiel and services supplied the Province.

(*b*) Will be involved over an extended period in the ultimate audit of accounts involved in cost-sharing, Federal/Provincial, when agreements in this connection are settled.

Department of National Health & Welfare

(*a*) Prairies Emergency Welfare Services Officer assisted in formulation of Prov. Emergency Welfare Services plan, and with added support from Ottawa Emergency Welfare Services took a large part in the establishment of Reception Centres at Carman, Morden, St. Pierre, Steinbach and Altona.

(*b*) Assisted in development of the plan for evacuation, maintenance and ultimate rehabilitation of Roseau Indian Band with Indian Affairs, Indian Health Services and Provincial Emergency Welfare Services.

(*c*) Indian Health Services, prepared a comprehensive plan for health care and sanitation for evacuation, and relocation of Roseau Indians. They are presently surveying the Reserve from a sanitation standpoint in anticipation of its re-occupation.

(*d*) Arranged the issue, in advance, of Old Age Security and Family Allowance payments to financially assist persons likely to face evacuation.

Department of Northern Affairs and Natural Resources

(*a*) The District Engineer, Water Resources Branch, is a member of the Manitoba Flood Forecast Committee and as such provided services throughout the Winter, early Spring and the flood period.

(*b*) The Hydrometric Office co-operated with the Provincial Hydrologist on a daily basis over many weeks in the supply, co-ordination and analysis of hydrometric information.

(*c*) Field personnel of the Water Resources Branch (Hydrometric) were re-deployed to concentrate on the Red River watershed to ensure most complete service to their counterpart Provincial officers.

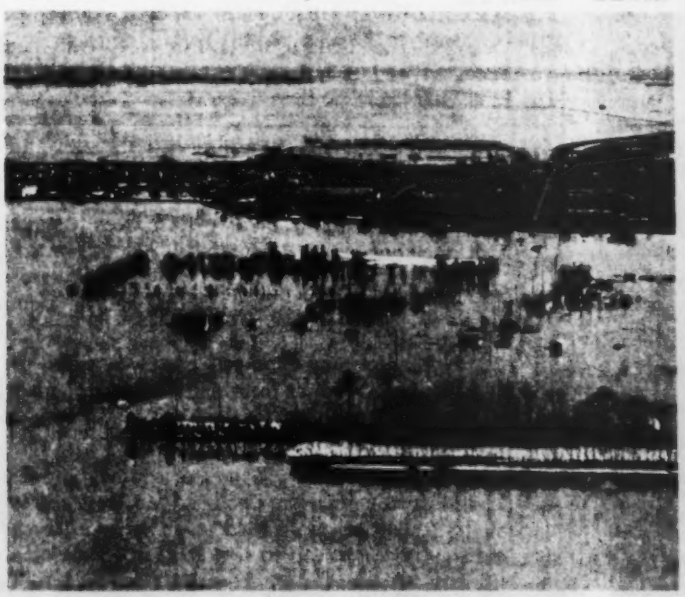
(Continued on page 23)

MANITOBA

METRO CIVIL DEFENCE WINNIPEG

Emergency pumping for seepage in Winnipeg

L. L. PATEY



The town of St. Jean de Baptiste

A. M. STIRT

Diking (foreground) at Ste Agathe

FLOOD 1966

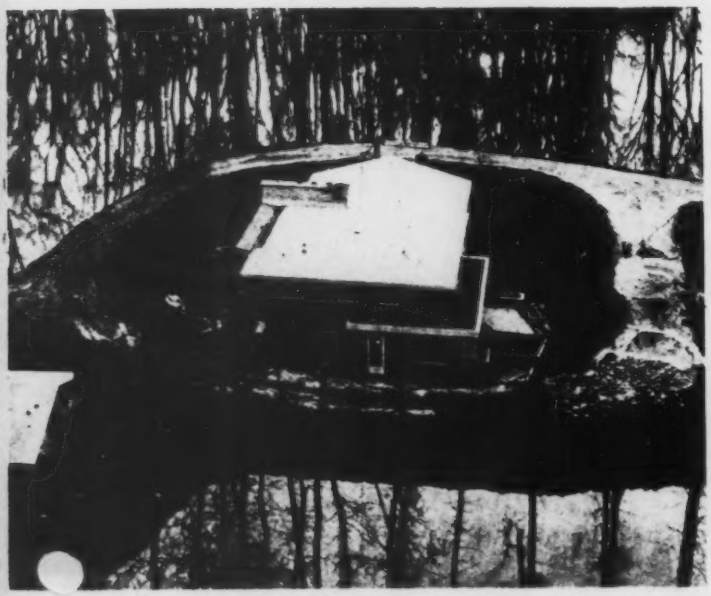
L. L. PATEY

Stampede grounds at Morris

A. M. STIRTON

Perimeter diking (foreground) at Morris

A. M. STIRTON



Private diking about 15 miles south of Winnipeg

A. M. STIRTON

Inundated farm near St. Jean de Baptiste

METRO CIVIL DEFENCE WINNIPEG

Outside the primary dikes, Winnipeg

MANITOBA INFORMAT ON SERV

Mr. I. H. Deyman, Regional Director, Canada EMO and Mr. A.
Nicholas, Deputy Co-ordinator for Manitoba EMO in Flood Cont
Headquarters in Winnipeg

METRO CIVIL DEFENCE WINNIP

Secondary diking at the Main St. Bridge, Winnipeg

METRO CIVIL DEFENCE WINNIPE

Secondary diking with Red River in foreground

MANITOBA FLOOD 1966

METRO CIVIL DEFENCE WINNIPEG

Secondary diking by Winnipeg school children

METRO CIVIL DEFENCE WINNIPEG

Secondary diking to protect private property in Winnipeg

METRO CIVIL DEFENCE WINNIPEG

Primary diking in Winnipeg

A. M. STIRTON

Farm scene north of Morris

REFLECTIONS ON CIVIL DEFENCE AND SURVIVAL

by Wing Commander Sir John Hodsoll, C.B.

Sir John Hodsoll has compiled in twenty chapters his personal views on the important things which should and need to be done to develop a healthy civil emergency programme. The Canada Emergency Measures Organization is indebted to Sir John for his permission to reproduce his material in the EMO National Digest. It is being reproduced in serial form. Chapters 1 to 5 appeared in the April 1966 issue. Chapters 6 to 9 appear in this issue and the remaining chapters will be published in subsequent editions.

Chapter 6

Shelter and Evacuation

The problems of shelter and evacuation, which are closely interlinked, have been referred to in Chapter 3. It is fundamental to survival and is examined in more detail in this chapter.

Before and during the last war, shelters were constructed on a very large scale by Germany and Britain and to a lesser extent by other countries. Their strength varied, but, in general, they aimed at giving protection against blast and splinters from a near miss by a 250 or 500 lb. bomb and were designed to withstand the earth-shock caused by the explosion. In Germany, the massive bunker shelters were capable of withstanding the impact of still heavier bombs.

One very important lesson learned in Britain, in the early stages of air attack, was the vital need to construct shelters on the box principle; that is, tying the roof and sides together. There were some unfortunate experiences with trench and surface shelters, where the earth-shock caused the sides to collapse or cave in and allowed the concrete roof to collapse on to the occupants, causing heavy casualties.

This earth-shock effect had not been appreciated beforehand; and to counteract its effect, all shelters, where it was possible, had the steel rods which reinforced the concrete bent round so that the roof and sides were firmly locked together. It was also found that, if a little drift was allowed on the concrete foundation, it helped to absorb the earth shock. In some instances, whole blocks of flats, which were constructed on the raft principle, moved quite an appreciable distance, but remained otherwise intact, so far as the main structure was concerned.

These points are of particular importance in selecting shelters in buildings, which should not be used, without appropriate strengthening, if the floors just rest on supporting walls.

There is no doubt that, despite early difficulties, shelters saved thousands of lives and were a very important factor in helping to maintain the morale of the population.

In Britain, as one example, the policy was to provide shelter in the home or garden where possible; two types were developed for this purpose. They were known as the "Anderson" and "Morrison" respectively, after the Ministers in charge at the time, the former for out-of-doors, made of corrugated iron, semi-sunk and covered with earth; the latter was virtually a steel table which could be set up indoors and was designed to take the weight of an ordinary two storied house, if it collapsed on top of it.

Where such provision was impossible, collective shelters were developed, i.e.: in basements of large blocks of flats, hotels, in the street or any other suitable place. Because bombing by aircraft occurred mainly at night, sleeping and other facilities had to be provided. The sleeping problem had not been anticipated and needed much hasty improvisation.

It is an interesting psychological fact that many people felt safer in their own homes or the shelter to which they were accustomed to go, and with the people with whom they were used to sharing the dangers. They were probably no safer than they would have been anywhere else, but this belief is a morale factor to be remembered.

Another important point was the communal life which developed in the larger shelters and which also helped morale, especially if there was the right type of shelter warden and the facilities were good. There are many people, perhaps the majority, who feel braver in company than by themselves.

The provision of shelters was a costly business. The house and garden shelters were sold to the public at cost price, though they were issued free to those who could not afford to buy them. Otherwise, the whole programme was financed by the Government, except that Industry was responsible for its own arrangements, being allowed certain tax reliefs on expenditure incurred for Civil Defence purposes.

It is interesting to recall that, at the outset, shelter provision was made a local authority responsibility that ranked for a Government grant in the same way as other Civil Defence requirements. Under this grant, the Government paid 75% of the cost, this percentage being increased under certain conditions related to the financial capacity of the local authorities concerned. It

was not long, however, before there was a big outcry from the poorer authorities, especially those in the probable target areas; and in the end, the Government had to assume full financial responsibility. In doing so, the date on which this arrangement came into force was not made retrospective, which caused great dissatisfaction to those authorities which had already made a start on their shelter programme. This point is especially mentioned, because it is bad policy to antagonise and penalise those who are anxious and willing to plan ahead.

Today the situation is different in degree, though not in end. The need for shelters is just as great—much greater in fact—but to achieve the same degree of protection against nuclear weapons as was provided in the last war against high explosive bombs, raises financial issues of staggering magnitude. Only a few countries have attempted to implement a shelter policy so far. What is the answer?

Protection is required, not only against blast and splinters, but gamma rays and fallout. Also, since fallout can involve a whole country or a large part of it, probable target areas are not the only ones that have to be considered. It is fortunate that the immediate gamma ray peril is most likely to occur within the radius of complete destruction from nuclear attack, and need not, therefore, be considered normally in other areas.

There is no such thing as a near miss from a nuclear weapon—the area of devastation is too widespread. But, if the centres of probable targets are plotted, the area of complete destruction and very heavy damage can be roughly delineated; outside these areas the types of shelter provided in the last war will give worthwhile protection. It would seem reasonable to frame a shelter policy on this basis, with plans to evacuate everyone within the central area, where the provision of shelter is not normally a practical proposition.

Outside target areas, the problem is one of fallout protection. Ill aimed or stray weapons may fall in such areas, but this risk will have to be accepted as a war hazard for which provision cannot be made.

There are various ways in which this vital problem is being tackled, though it is regrettable that there are still a number of countries in NATO which have so far made no move at all. The United States have laid down a policy which virtually puts the responsibility on the public themselves. They have produced two designs of tested shelters: one against blast, which includes fallout, and one against fallout only. They have made available full details of these shelters in pamphlets, which have been distributed in millions and have strongly recommended to the public that they should provide themselves with one or the other. They have also said what the cost should be.

There are signs that a number of people are building these shelters. One firm making swimming pools switched over-all production to shelters and reported a good trade, but there are signs that demand is declining —it may by now have disappeared.

Tests have been carried out to show that these shelters can be inhabited for a fortnight, without the inhabitants coming out, provided suitable arrangements are made. And considerable publicity has been given to people who have already provided themselves with a shelter. Information is also provided as to how you can build your own shelter and the peacetime uses to which such shelters can be put.

Just what percentage of the population have actually got shelters is probably unknown; it cannot be very large. Still a start has been made.

Norway and Sweden have taken full advantage of their "rocks" and have made much excellent provision, not only for the public, but for their services as well. And industry has played an important part in it all. The underground factories in Sweden are well known. Denmark, having few natural features, has been steadily building small shelters with a capacity of about 50 persons. They may be seen all over Copenhagen and other cities. They have been suitably covered and are no eyesore to that beautiful city.

These countries have also encouraged the building of underground garages and shelters beneath new buildings of suitable construction, and a good deal has been accomplished. In some cases the Government pays the extra cost of strengthening to make the premises suitable as a shelter. This is often the most economic method of getting good shelter provision. Apart from the important fact that such premises have a peacetime value and can be a means of revenue e.g., underground garages. The idea that shelters provided in peacetime are a dead loss, unless there is a war, is only partially true; even if they have no peacetime use, they are a form of insurance.

The City of Luxembourg is ringed with Casements, built by that famous French fortress engineer, Vauban, and they are being suitably converted. They will have a large capacity. Germany has also embarked on a well conceived shelter plan, although the use of the huge bunker shelters, which had a capacity of some thousands each, will be far more limited in the future owing to the greatly reduced warning time.

These examples have been given to show that those countries which have resolutely set their minds to this problem have been able to achieve a great deal. And given time and a steady continuation of their programmes, they can face up to the future with a good deal of confidence.

If, as seems likely, many countries feel they cannot face the financial implications of a full blooded shelter policy, or politically are reluctant to do so, then the policy adopted by the United States is the most practical, although it represents the absolute minimum that ought to be executed. It should obviously be supported by a programme of what might be called "commercial shelters" to which reference has already been made. It

might equally help if tax relief was allowed on any money spent privately or industrially on shelter provision.

Ideally, the incorporation of shelters in public and private buildings should be made compulsory and the extra cost recovered in the normal way. Because a shelter has been built in a house or building, it ought not to add to its rateable value, but be legally exempt to give an added incentive.

As has been said, the shelter programme should be allied to one of evacuation from those parts of target areas in which no protection is possible, i.e.: the areas of probably complete destruction and very heavy damage. Plans should be made on the basis that any such evacuation will have to take place during a period of tension, otherwise it will almost certainly be too late.

It is essential that there should be a definite policy and the public told what it is and how it will be implemented. Such a policy might be a combination of the various methods to which reference has been made; or the public should be told quite frankly: "It is up to you. This is what we suggest you do, and we can help you in the following ways." Whatever the policy may be, however, it will take time to implement. It would be disastrous to enter another war with the civil population far less prepared and well protected than they were last time, or in the worst case, with no protection at all.

Chapter 7

The Structure of the Civil Defence Forces

It has already been said that Civil Defence personnel must be trained and organized to meet any kind of attack and should not just be oriented solely on nuclear weapons.

It was originally the generally accepted principle in most countries in peacetime, to rely mainly on volunteers with a small nucleus of paid personnel, administrative and technical.

In war, the picture inevitably changed and while there was always considerable reliance on volunteers, they had to be augmented by whole time personnel. In Britain, in the second half of the war, the Civil Defence Services developed into static (local) and mobile (national) forces, the latter being on a whole time basis. It had been intended, originally, to rely on mutual support between neighbouring authorities to aid each other, but this system never worked very well in practice; and, in the case of the fire services, broke down altogether and led to their nationalization.

The arrangement was that an authority could immediately, on its own authority, send 1/3rd of its forces; and a further 1/3rd on the authority of the Regional Commissioner. The remaining 1/3rd being kept in case the aiding authority should be attacked while its forces were away. Such reinforcements would normally be rescue and first aid parties with ambulances.

It was found that authorities were not very willing to part with their forces if they thought they might be attacked, and difficulties were experienced with many of the volunteers who were engaged in vital war work. This situation led to the organization of mobile columns, which were based, tactically, in relation to the main target areas and were manned by whole time personnel from Local Authorities, serving on a rotational basis, usually a month at a time. They were self contained as regards transport, but were not organized to feed or house themselves away from their base. The Fire Service had its own mobile columns, which were quite independent.

There was a time, during the V1 and V2 attacks which continued throughout the 24 hours, and bore chiefly on London and southeast England, when the strain on the Control and Wardens' Services in London became very severe and volunteers for the latter service were asked for and responded readily from all over the country. This was an interesting experiment, because a warden's job was so essentially local and it was thought they would be severely handicapped outside their own area, owing to lack of local knowledge. The same remarks applied to Control Staff. The Wardens soon overcame this difficulty and settled down in their new environments; the Control Staff were not reinforced, though volunteers could probably have adapted themselves equally quickly.

The peacetime problem is not easy. It is impractical and unnecessary to maintain the first line strength required in wartime and the same remarks apply to the Armed Services; the latter, however, maintain trained reserves, which is not easy with the Civil Defence Services except where there is conscription. They must rely, mainly, on expanding on the basis of untrained personnel, who will have small chance of getting any training before being thrown into action. This is a very unsatisfactory state of affairs to which further reference will be made.

Normally, Civil Defence aims to have a basic nucleus of well trained personnel on which expansion can take place. There is need for both local and mobile forces; the latter acting in support of the former. It is interesting to see how some of the NATO countries are tackling this problem.

Both the United States and Canada rely entirely on volunteers, with a paid administrative and training nucleus. They have no mobile columns as such, but rely on mutual support schemes which operate on an area basis. In both countries, the problem is complicated by their size: in Canada, especially in the provinces west of Ontario, there are great distances between their

population centres. The idea is to try and make these centres more or less self supporting with the aid of the surrounding areas.

In America, the States have been grouped into regions which are self supporting as far as possible. There are mutual aid pacts along the 49th Parallel between neighbouring provinces in Canada and states in the United States.

Norway has the ability to conscript for Civil Defence for both local forces and mobile columns. As a result, it is probably one of the few countries to achieve her establishment and to have built up a trained reserve. Her mobile columns are small in size because of the nature of her roads. Sweden has a somewhat similar scheme.

Denmark has conscription for her mobile columns and relies on volunteers for her local forces, though having found difficulty in getting the numbers required, has taken powers to fill up gaps with conscripts. She has built up a considerable trained reserve from her mobile columns, which have an annual intake of 1,100 and carry out a year's training.

The Netherlands relies on volunteers for the local forces, though has power to fill up gaps with conscripts. The mobile columms are provided by the Army and do 10 days' training a year: they will be wholly at the disposal of Civil Defence in war time. It might be remarked that the 10 days has not proved very satisfactory, as it is found, in practice, that the time is mainly taken up in refresher training.

Germany at present relies on volunteers. She has an important adjunct to Civil Defence in the *Techniche Hillswerke*, a voluntary organization which was started to keep essential services, e.g.: power stations, going in time of strikes, national disasters and so on. This organization is composed of highly technically qualified personnel and undertakes a great variety of tasks. It forms the basis of the rescue service, though with a greater versatility than is usual in that service.

Britain still relies on volutneers. So long as conscription lasted, mobile columns were provided by the Army's Mobile Defence Corps; but this force has now ceased to exist and the Territorial Army has now assumed responsibility. It seems doubtful, however, how far reliance can be placed on this force since it has a variety of military responsibilities, which are likely to take priority over Civil Defence. There is no training as composite mobile columns as such, in the same way as the Mobile Defence Corps.

These examples show considerable variety, but it is interesting to note the way in which certain countries have come to rely on conscripted personnel. It is clearly essential to provide, by whatever means, a highly trained nucleus in peacetime which will be capable of rapid and smooth expansion in time of emergency. There should, therefore, be a definite relationship between the proposed war time establishment and that to be recruited in peacetime, to ensure there is a sound structure that will not be overwhelmed by sudden expansion.

Whether this peacetime nucleus is composed wholly of volunteers, wholly of conscripts or a mixture of both is immaterial. What is essential is that it should be up to establishment. Experience since the war has shown that this object is very difficult to achieve on a wholly volunteer basis. In fact Britain does little more with her annual recruiting drives than keep pace with the wastage; even this vital requirement is not always realized.

The strength of the peacetime nucleus must not become a wasting asset; that is why some form of direction is important where the voluntary system does not wholly succeed.

There is another difficulty connected with the permanent staff. There is no career as such, in many of the Civil Defence services. Any job is apt to be a dead end, with comparatively low pay and much hard work.

The United States has recognized this need and announced that a programme to train young men for careers in Civil Defence. Such a step is to be warmly welcomed. Civil Defence has tended to put too much reliance on personnel retired from other careers, often not in their first youth. This is not to decry the splendid work that such people have done; without them Civil Defence might well have collapsed. Nor is it suggested there is no room for such people, provided they have the right temperament and the sort of experience that will help them in their work. But they should not be the only source of supply.

It is time that the highly professional and technical nature of Civil Defence was recognized and a leven, if only small, of young career men and women was introduced into the service. Civil Defence is not just a job that anyone can pick up in five minutes; nor is it one that can be successfully tackled with just some administrative experience. By its very nature it requires dedicated personnel. Means to attract the right sort of man and woman should be found, remembering that Civil Defence is here to stay as long as the Fighting Services are required.

One of the big questions, unsolved in many countries, is that of building up a reserve. To flood the service with untrained personnel the moment a crisis arises is going to present untold difficulties and yet this is just the problem that many countries might have to face. It is essential to build up a reserve, the members of which have received some training and some experience. Such a reserve might be partly filled by those who have served in Civil Defence, provided they were not too old, and partly by attracting people who would be willing to take a small amount of training each year, say a minimum of 20-50 hours, with an occasional exercise. The strength of the reserve must be such that it can bring the peacetime nucleus up to war establishment. Members should be trained and earmarked for a particular branch of the service and should know their war appointment.

Mobile Columns must receive not only individual and team training, but also training as a composite

unit. It is doubtful if this training initially, can be accomplished under 3-4 months of continuous service. They must come up for annual training, which should include going into barracks and camp, and for a long enough period to include refresher courses as well as progressive training in the latest techniques and tactics. It is easier to achieve these objects with conscripted personnel; but in Britain the arrangements for training the Territorial Army work out satisfactorily with the co-operation of employers. It should not be impossible to make similar arrangements for Civil Defence.

Columns can consist wholly of Civil Defence personnel, as is the practice in Norway, Sweden and Denmark, or Army personnel as is the custom in the Netherlands. If this latter solution is favoured, then there must be an undertaking that they will belong to Civil Defence in wartime.

As to the composition of the column, practices vary. In Britain in the last war, they were organized and trained for reconnaissance, rescue and first aid.

The practice in the Scandinavian countries and the Netherlands is to make them all-purpose, which includes rescue, first aid, emergency feeding, debris clearance, bridge building, fire fighting, amphibious operations and so on. The German *Techniche Hillswerke* has the same qualifications, with the exception of fire fighting.

On balance, there is much to be said for the all-purpose column, since it can be switched to the tasks of greatest urgency and has flexibility, which is highly important.

Bridge building and debris clearance can be held to be outside the normal functions of a column; but under nuclear conditions, ability to get themselves where they are wanted, with their own resources, is essential. And if a land approach is impossible, then ability to take advantage of any water approaches will be invaluable. There seems to be no reason why they should not be airborne, especially in helicopters. Debris clearance should only be carried out to facilitate operations and save time. It is normally a job for contractors.

Mobile Columns should be equipped and provided with suitable transport to carry out all these tasks, and they should be able to feed and house themselves in the field as the Army does. Local resources may be non-existent. They need, therefore, a very comprehensive training, which is clearly easier to accomplish with conscripted personnel.

As to whether they should include a fire fighting section is open to argument. Continental opinion favours this provision. Great Britain has hitherto held the view that fire fighting is such a big and technical problem that it must be left to the fire services. While this argument has much force, it is believed that a fire fighting section is a definite advantage under the conditions that must be envisaged.

While the proposals outlined have a general application, some countries, such as Canada and the United States, have special problems due to the immense size of their territories. In Canada, the population centres, over a large part of the country, are widely separated and the creation of mutual support areas is probably the most practical answer. British Columbia represents a special problem, being isolated by the great range of the Rocky Mountains from the centres of Calgary and Edmonton. Mutual aid arrangements have, therefore, been made with the State of Washington and the City of Seattle, and in fact exist also all along the 49th parallel. It may happen that owing to geography or other circumstances, international co-operation is essential.

In the United States, the same distance problem exist, though most of the country is more highly populated. The country has been, for Civil Defence purposes, divided into a number of Regions, each comprising a suitable grouping of States between which mutual aid schemes have been organized. Alaska and Hawaii are out on a limb and would need reinforcements by air.

It is suggested that the forces which might be needed for mutual support should be earmarked, receive special training and have a high degree of mobility. They should be, as far as possible, capable of being self-supporting and self-contained. Much will depend on the distances from their bases at which they might have to operate, and whether they could be easily and quickly withdrawn to rest and refit. It is important, if possible, to work from a fixed base.

Air transport must be considered as a quick method of getting personnel and light to medium equipment from one place to another. Where heavy equipment is likely to be needed, it may have to go by rail or water or could form dumps in locations relative to probable target areas, though at a distance sufficient to avoid destruction, or located underground.

Civil Defence services should be organized as a well balanced and flexible force and should have a high degree of mobility, including mobile control centres to enable independent operations to be carried out in the field. There will be need for static control centres and depots and bases as well, and wardens posts will be essential.

There might be advantage in having a Commando force, within the structure of the mobile columns or mutual support groups. Such a force should be highly trained and ready to meet any sort of emergency, in peace or war. It would need special light equipment so that it could be despatched by air—aircraft or helicopter; or any other suitable means of transport—light fast river craft, for example. It might well become the *corps d'élite* of Civil Defence. There would be advantage, if it was equipped and trained to be parachuted on to its target.

There must be well organized mobilization arrangements, including depots or posts—not in the target areas—where transport, uniforms and equipment can be drawn. Both Norway and Denmark provide excellent examples. The organization should be tested annually, as is done in these countries, often in connection with a big NATO exercise.

The broad structure of Civil Defence has been outlined; details will vary to suit local conditions, especially of climate, as operations may have to be carried out in heat, snow, ice or flood conditions. In some countries, like Norway, mobile columns may have to be small, because of the narrow and twisty nature of their roads. In others, columns equivalent to the strength of an infantry battalion may be more appropriate.

Whether the Fire Service remains independent or is militated into Civil Defence, must be a matter for each country to decide. It is thought that mobile columns should have a fire section in any case; and if the Fire Service is independent, then there must be the the closest co-operation with Civil Defence.

Whether the whole force should be under civil or military control or a mixture of both is another open question, which countries must decide—practices vary widely. It is essential, however, that if Civil Defence relies on Army formations to provide an essential part of their forces, e.g.: mobile columns, they must be wholly at the disposal of Civil Defence in wartime, unless exceptional circumstances arise. And if the Army is responsible, in peacetime, wholly or partly for Civil Defence, it must not become the poor relation and be starved of money.

Finally, operations must be co-ordinated under one command. Divided control can be disastrous, as history has repeatedly shown.

Chapter 8

Civil Defence Operational Control Organization

In the last war in Britain, there was a Central War Room attached to the Ministry of Home Security as it was called, with which was combined a Key Points Intelligence organization. This War Room was linked with the Regional Headquarters by teleprinter and direct line telephone.

It had no executive authority and its chief function was to act as a central intelligence bureau to which Regions reported. It produced daily intelligence summaries of the bombing situation, received information from the Warning Officers attached to Fighter Command Centres regarding impending attacks, and maintained liaison with the Central Government War Room, which was the nerve centre for the whole conduct of the war.

Under the chairmanship of the Minister of Home Security there was a daily meeting of Ministers concerned with the various aspects of Civil Defence and Civil Emergency Planning, where the situation was reviewed and the necessary decisions taken; or matters referred to the War Cabinet if necessary. It also provided a means of high level co-ordination.

The Key Points organization, which was more or less a separate entity, received direct information regarding the damage to key industries. From this knowledge, carefully built up before the war, the staff were able to give accurate assessments of the results of bombing, on the basis of which it was possible for decisions to be taken as to whether the damage was such that production would have to be concentrated elsewhere, with the help of what could be salvaged from the wreckage and to which establishment or establishments the move could best be made. Alternatively, if the damage was such that repairs were worth while, recommendations were made accordingly and production continued at the factory. It was one of the most valuable organizations built up before the war with the co-operation of industry. Its information not only included the major war factories, but all those lesser units which provided the component parts without which the main industry could be brought to a standstill.

The real focal point of operational control was the Regional Headquarters, which had their own war rooms and were responsible for seeing that the Local Authorities and Industry were carrying out their jobs satisfactorily, and were given such help and reinforcements as might be required. The Mobile columns, when formed, came directly under their operational control, subject to any national requirements. The Ministry itself only exercised an operational control role if a Region's resources became inadequate, since they were not normally empowered to help each other on a large scale without authority. The concentration of mobile columns in the south of England before the invasion of France and the reinforcement of London Region by Wardens during the V1 and V2 attacks, were authorized by the Ministry, though the detailed arrangements were made between the Regions concerned in accordance with the broad central plans.

Regions and Local Authorities also maintained a close liaison with the Service authorities, who were, of course, responsible for Civil Defence organizations in their own establishments. Although Industry co-operated closely with the Local Authorities, they were largely independent, working direct to the Ministry under whose control they were, e.g.: Ministry of Supply and Ministry of Aircraft Production.

Similarly, the Ministry of Transport was responsible for railways and shipping, and the Ministry of Fuel and Power for coal mines, power stations, etc. There were, in fact, many cooks stirring the Civil Defence broth, which inevitably led to a certain amount of duplication and sometimes friction.

Most of these Central Government Control threads were channeled through Regional Headquarters. A good deal of co-ordination was needed to make this unwieldy machine work with reasonable smoothness.

Another complication was the independence of the Fire Service, which had had to be nationalized, and although coming under the Ministry of Home Security, stoutly maintained its independence.

The Police, who had a most important role in Civil Defence operations, were also independent, coming under the Home Office for central direction though with two exceptions, being administered by the Local Authorities (Counties and County Boroughs). (The Minister of Home Security was also Home Secretary.)

Local Authority boundaries were used for operational purposes, although they were sometimes inconvenient. Attempts to rationalize them were not well received, however, as the authorities feared they would prejudice their position after the war, if changes were contemplated.

All these difficulties were due to an entirely new situation arising from bombing attacks; but, on the whole, everything worked reasonably under fire. It was during the considerable lulls that most troubles arose, when people had time to think of the things they disliked.

This brief and incomplete résumé has been given so that the experience can be borne in mind. Under nuclear attack, there will have to be some drastic adjustments to this aged structure.

There will be two main problems in the future, though they both form part of the Defence of the Home Front, excluding active operations. They are the maintenance of the life of the country, now known as Civil Emergency Planning; and the operations to protect and succour the civil population, known as Civil Defence. It is with the latter that this chapter is mainly concerned.

The first question is whether a Central Government Command is required to control the overall deployment of the Civil Defence forces, or whether an Intelligence Centre, on the pattern of the last war —which will be required in any event—will suffice. In view of the global nature of the attack, there is a strong case for appointing a Civil Defence Commander-in-Chief or Director General in charge of all operations. The alternative would be to have a military C-in-C of the Home Front, with a deputy for Civil Defence. Whether there would be an invasion threat is a moot point. In view of the chaotic state into which the country might be plunged in a few minutes and the vital role the surviving military forces would have to play in restoring the situation, there is much to be said for having one over-all Commander, with an adequate military and civil staff.

Whatever arrangement is preferred, there must be decentralization; and, on the civil side, where no Regional Authorities exist, they must be created and set up in peace time. Countries which are already divided into states, provinces or departments have a ready made and experienced machine at their hand; though in very large and highly populated countries like the United States, the grouping of a suitable number of States into a Region for Civil Defence purposes, as has been done, is clearly wise. Whatever form this second echelon takes, however, it must have a large measure of autonomy, since it may well be isolated from the Central Government.

During the war, the Regional Commissioners in Britain had in their pockets authority which would have made them virtually Prime Ministers of their Regions, if the need had arisen. And a precaution of this kind is essential, since all communications may be disrupted.

A strong case can be made for the post of Regional Commissioner, or whatever he may be called, to be held by a distinguished politician, preferably one who has held or holds Cabinet rank, but having under him a strong operational and administrative staff to ensure self-sufficiency if the need arises. Each such Regent should have mobile Civil Defence columns at their disposal or mutual support forces, whichever arrangement is most appropriate.

The operational and administrative chain below Region will vary and must generally be made to fit with the existing peacetime organization, but, again must be organized so that it can function independently if it becomes isolated. Big cities should, therefore, include rural areas, wherever possible, from which mutual aid could be provided and the whole split up into groups or sub-areas so that there is further decentralization into units which might also have to be self-contained for a while. In entirely rural areas, the organization should be based on small towns as the focal points. All these lower echelons will need both administrative and operational staff, though there must be one person in charge, selected for his over-all ability. It must be borne in mind that after a nuclear attack, it may well be these rural fortresses that will hold the key to survival.

While, therefore, there must be a proper operational and administrative chain from top to bottom, it must be organized, staffed and trained to act independently at all levels, and be prepared to exist on its own resources, if one or more of the links are temporarily broken, as is most likely.

At all appropriate levels, there should be representatives of the Fighting Services most concerned, generally the Army; though if one or other of the other two has a predominant interest, e.g.: in a Dockyard Port, their representatives will be of especial importance. If the Army is in charge, they must equally ensure that appropriate civil representation is available in their command centres. In either case, Headquarters must include representatives of the vital interests concerned, e.g.: industry, communications, public utilities, etc.

Whenever Service reinforcements are called in, they should work under their own officers and N.C.O.s, and be given tasks appropriate to their service training and qualifications, e.g.: signal personnel on communications. All such problems should be discussed in peace time and where possible, inter-service training and exercises carried out.

The proposed operational chain of command has been briefly described. The administrative one, which is of equal importance should, wherever possible, coincide. The boundaries of the commands should follow peacetime administrative—or possibly military—

boundaries unless they are obviously unsuitable. This is a practical solution to the problem, the advantages of which are too obvious to need elaboration.

Finally the point is again made that any command area may find itself isolated and communications cut off. Ability to be self-sufficient must be hammered home from top to bottom of the organization. In fact, the sub-areas in the country districts may be the key survival areas from which the fight back will have to originate.

Chapter 9

Civil Defence Operations

In the last war in Britain, it was the practice to house all the Civil Defence Local Forces in Control Centres, Depots and Posts, wherever they were needed, without regard to the effects of bombing. The Mobile Columns when they were formed, were located well outside the target areas; so were the majority of the main storage depots. Most of the Regional Headquarters were in main target areas.

When the Civil Defence organization on the ground was being planned before the war, the risk of damage and destruction was accepted as a hazard of war; and though, as a result of heavy bombing, damage and loss were inflicted, it never reached such proportions as to necessitate any drastic changes.

The situation to be faced in the future however, will be quite different, and these sorts of risks cannot be accepted with nuclear weapons.

In the first place, life and property saving operations in areas liable to complete destruction will probably be impossible and useless. The work of the services will have to take place in the areas of heavy, medium and light damage, and because of the difficulties created by blocked roads, broken bridges and other hazards and handicaps, will usually have to start from the fringes of the damaged areas and be directed inwards.

It may be possible to drop light forces into more heavily damaged areas by helicopter, or to reach them by water, depending on circumstances and the urgency of the tasks to be undertaken. The fallout hazard will also influence the time when operations can start.

The first requirement in nuclear warfare is observation of the burst, so as to determine its nature, i.e.: whether air or ground, its height, the size of the bomb and the position of ground or water zero. This information should enable a rough plot to be made of the various radii of damage and will also confirm whether or not fallout is to be expected. If it is, then information about the strength and direction of the upper air currents will be urgently needed to determine in which direction the fallout cloud is likely to travel.

Two sets of action are, therefore, required at the outset. The rough delineation of the damage based on the plot of ground or water zero and the issue of preliminary warnings to those areas on the side of the explosion where fallout is likely to occur, with rough indications of its radioactive strength.

Before operations can be properly planned, a general reconnaissance of the area should be made preferably by air—helicopter or light aircraft—which will be much quicker. To what extent such reconnaissance should be just visual or visual photographic is a matter for decision at the time. Ideally, perhaps, first reports should be by wireless and aimed at giving a general picture of the situation, being followed by a photographic survey of such areas as the controller of the operations may require, once he has settled his main deployment plan.

The actual deployment of forces should be made, normally in accordance with the peacetime control system and the organization on the ground, which at the bottom end, in Britain, consists of Sectors, Warden's Posts and Patrol Posts. Such areas are based on natural or artificial boundaries: roads, rivers, etc. But with the scale of damage and destruction that may have occurred, a controller may be forced to ignore or modify them and should not hesitate to do so, if the situation warrants, although taking care to notify all concerned.

The other essential reconnaissance need will be in respect of fallout, where it is present or suspected. Air reconnaissance may be possible; ground monitoring will be essential and must be supplemented by the forces as they advance into the area.

These preliminary moves may sound rather long drawn out when there are casualties waiting to be dealt with, fires to be extinguished and much vital work to be undertaken. There is a well known maxim that time spent on reconnaissance is never wasted, it applies with special force to the circumstances being considered. This preliminary phase should not take long and it will be useless to rush forces blindly into an area without a concerted plan. To do so might cause heavy casualities and the difficulty of disengaging forces is well known, apart from the valuable time that may be lost.

If reinforcements are required, as is most probable, it will be essential to get them straight to the operational area to which they have been allotted. If they are directed or take themselves to the wrong area, time will again be lost. Reinforcing units should be alerted the moment their need is foreseen; but they can be routed to a rendezvous which will allow flexibility of deployment.

Since the approach of the Civil Defence Forces must be from outside the area of main damage working in towards the centre, it follows that these forces should be located on outskirts of probable target areas. They should have depots with sleeping and feeding arrange-

ments, and should be mobilized in or withdrawn to such depots during a period of tension, otherwise they may never reach them. In these depots should be uniforms, equipment and transport, and they should be earmarked or provided in peacetime. They would correspond to Army Regimental Depots, and be provided with shelters, preferably giving protection against fallout, blast and splinters. Billetting of personnel may be possible, but for various reasons difficult or undesirable.

These suggestions argue a degree of peacetime preparation that few countries have faced. Such bases will be essential and if non-existent will have to be improvised, which in the prevailing conditions may be difficult. At the very least, the equipment, transport and stores should be provided or earmarked in peacetime, as well as premises, in areas outside those liable to heavy damage or destruction.

There must also be static command and control posts located on the outskirts of probable target areas, supplemented by mobile centres for field working. Each operational sector will require a controller in charge of operations; his mobile centre consisting of a control and communications van or vans, together with reconnaissance units—jeeps with communications equipment. The controller should be able to call for air reconnaissance, if required.

The other source of information will be the Wardens' Services. If areas which are judged to be unprotectable are being evacuated the wardens, having helped to supervise this operation, should be withdrawn as well and used to reinforce the outer areas and to replace casualties. There is no point in leaving them behind to be killed. This withdrawal should be planned beforehand and the wardens allotted to their new areas and encouraged to get to know them. The Wardens must always remain the chief source of local information; their reports should form part of the intelligence on which the sector controller will base his operational plan.

There are various problems connected with the Wardens reporting, which are not easy to solve. The Controller will not require too much detailed information about the comparatively small area covered by a Wardens' Post. He will need a filtered and consolidated report covering each sector in his area. This filtering and summarizing will have to be done at suitable levels in the Wardens' hierarchy. The Sector Controller must have sufficiently detailed information to enable him to deploy his services and also to feed the Controller with the broad picture in his area.

At the same time, the Services will need as much detailed information as possible of the area in which they are to operate, though they must carry out their own technical reconnaissance, especially where rescue work is concerned.

Particular stress has been laid on the need for reconnaissance and information from all sources. The situation after a nuclear attack will be chaotic and if it is to be got under control, those responsible for the conduct of operations at the various levels must be able to form a reasonably accurate picture, if they are to frame suitable plans. The most important initial decision will be the best areas or area from which the "attack" should be launched, which must depend on the direction of the fallout cloud, the smoke from fires and other factors. The time when operations can be started will depend on the fallout situation and will most likely have to be free from the up-wind side of the fallout cloud. If fallout is not present, then the old situation may be the governing factor.

As soon as conditions make it possible, the damaged area should be "attacked" from all sides; but this may be impossible at the outset, which emphasizes the importance of self-help by the population, led by the Wardens.

Once the operations have been launched, they will be conducted in the usual way. Some areas may require priority for fire fighting, others rescue, and so on. It should be the general rule to deal with the surface and lightly trapped persons first. Meanwhile, the local reconnaissance can be carried out and the heavier and more difficult tasks put in hand as soon as possible. Life saving must come first, but the holding of serious fire situations is also a high priority.

Having cleared the areas of light damage, the movement of transport and heavy equipment may be impossible until debris clearance has been effected. The services must be prepared to operate, temporarily, with what they can carry and should be equipped accordingly.

There must be, also, an evacuation of people rendered homeless though not necessarily casualties, which must be dealt with simultaneously with the other operations.

The major part of this chapter has been devoted to the opening phase of the battle. It is vital that the operations are properly launched, and the right decisions taken. Once the services are at their tasks, the situation becomes reasonably straightforward, though naturally there will be decisions to be taken and adjustments made as they slowly penetrate inwards. This phase is essentially one of life saving and trying to contain the damage. Once this phase is over, the Civil Defence Services should be withdrawn. The question of whether to start any restoration of the damage is a matter for the appropriate authorities and probably the Government, and may have to be left for the time being. Since there are bound to be housing difficulties, repairs to lightly damaged premises may be essential, a task in which householders must try and help themselves, if they can be provided with the materials and tools required.

The operations described must be a combined effort and must rely on every household and organization doing what it can, not only to help itself, but also the regular forces. *(To be continued)*

OEP'S OFFICE OF ANALYSIS AND RESEARCH

Reprinted from the United States "Office of Emergency Planning News," Vol. 6, No. 1, April 1966.

The United States Office of Emergency Planning is organized into 12 Program and Staff Offices serving a particular phase of emergency preparedness. The Office of Analysis and Research is described here.

The broad objective of the Office of Analysis and Research is to provide new knowledge which will reduce the areas of uncertainty in emergency planning. More specifically, Analysis and Research is concerned with the performance of research directed to the support of the major missions of the Office of Emergency Planning; nuclear disaster, natural disaster and mobilization preparedness.

In the area of Research and Development, the Analysis and Research Office is responsible for the design and coordination of a comprehensive emergency preparedness research program within the structure of the Federal agencies having emergency assignments. The office assists these agencies in identifying research needs, stimulates and coordinates these research efforts and conducts a contract research program to fill the gaps.

There are five mechanisms employed by the Analysis and Research Office to assist them in carrying out these responsibilities:

1. Frequent contract with the Program Directors both within the Office of Emergency Planning and within other agencies to identify and support their needs.
2. An inter-agency research group, the Emergency Preparedness Research Committee, to review proposed and on-going research.
3. The National Academy of Sciences has established a high level non-government Advisory Committee on Emergency Planning to advise the Office of Emergency Planning on the scientific soundness of the emergency preparedness program and to identify research which would be of maximum benefit.
4. Seminars to bring together the experts an analyze salient views on a particular problem.
5. A contract research program to fill gaps and take advantage of talent not available within government.

The Analysis and Research role of continued exploration of the horizons of emergency preparedness and the bringing to bear of outside expertise to assist in understanding and basic policy formulation is facilitated and strengthened by two top level executive committee arrangements: the Program Advisory Committee and the Emergency Planning Committee.

The Principal Advisory Committee to the Director of the Office of Emergency Planning on substantive policy includes among its membership industrial executives, officers of financial institutions, economists and other key officials. The Emergency Planning Committee, composed of the Deputy Director of the Bureau of the Budget, the Assistant Secretary of Defense for Administration, and chaired by the Director of the Office of Emergency Planning, advises on the national nonmilitary defense policy. The Analysis and Research Office works closely with these two policy committees in addition to providing the usual staff support activities. The Analysis and Research Office also directly supports the Director in carrying out his duties as a member of the National Security Council. The Office also provides intelligence support for the Director and the Office of Emergency Planning professional staff in many areas of national security.

The National Resource Evaluation Center is an interagency activity administered by the Analysis and Research Office. Its mission is to provide certain kinds of statistical and analytical support for emergency planning and preparedness in 25 Federal departments and agencies.

The analytical requirements which many of these agencies have in common and which the National Resource Evaluation Center endeavors to meet include estimates of the post-attack of resources and population, estimates of the hazards of particular places and estimates for production goals and for materials essential to survival following an actual or hypothetical attack. To meet these requirements for estimates, the National Resource Evaluation Center has developed and is using a number of analytical systems most of them designed to take advantage of the power and speed of electronic computers.

The National Resource Evaluation Center is currently formulating an inter-regional, inter-industry model of the U.S. economy. This is the beginning of a long-term effort to improve analytical support for emergency planning and preparedness. It can be useful also in related applications—especially in prediction of regional and economic impacts of alternative public and other programs. ▲

The Effects of Disaster upon Systems of Human Organization

by
A. F. B. STANNARD

Scientific Adviser, Canada EMO.

The author's address to the Nato Scientific Working Party Meeting held in Paris, in 1965.

I make no apologies for the fact that I am not a sociologist, psychologist or even a business analyst. I often sympathize with those who are for they must regard with some annoyance the tendency for everyone to be his own authority in these fields. Physicists and engineers may build a cult barrier of terminology and nomenclature but the sociologist for the most part still uses the common language and so must defend his methods and observations against all comers.

In some twenty-five years of experience as a physicist and development engineer I have gained some degree of confidence in the human ability to apply knowledge of the physical sciences with predictable results; but at the same time I have learned to my sorrow that whenever the human element becomes a systems variable the results are not nearly so predictable. I think that this may well be the case in civil defence and emergency planning. Our knowledge of weapons effects and the general physics and engineering involved in experiencing and surviving a full nuclear exchange is reasonably firm and planning can be done with some confidence. But I don't think we can claim any comparable capabilities where the human element is concerned. This may well be the highest priority area for future study.

First, are we correct in assuming that all disasters have common factors independent of size? Do scaling laws really hold? When the individual meets with private disaster he automatically calls for help and his neighbours respond; when a community, or even a whole country, experiences disaster it too calls for help and outside aid restores it at least part way to pre-disaster conditions. In this respect the reaction of human social organization is somewhat similar to biological response to local injury. The uninjured remainder of the biological organization has excess energy and recuperative aid which it applies to the injured part to restore it to its normal position and role in the system as a whole. The response of world wide social organization to localized disaster is also to bring in recuperative aid and energy to restore the injured district or country to its normal position and role in the system as a whole.

But in biological systems there can be a form of disaster which affects all or most of the system. If this whole-body injury is in the form of physical damage there will be no undamaged parts to provide excess recuperative energy to the damaged area and the system may die. If this whole-body disaster is in the form of a drastic environmental change the whole system must adapt or perish.

It seems to me that in planning to survive a nuclear war we must not make the mistake of assuming that outside aid will always rush in from undamaged areas to restore damaged areas to a prewar condition. We must not assume that there is any excess of recuperative energy. It would therefore be safer, if possible, to plan methods for survival by providing a maximum of regenerative and adaptive power within the social structure.

There is another risk stemming from the same assumption. Since our whole experience with disaster leads us to assume that there is always an excess of recuperative energy available, we may make the mistake of planning post-disaster organization and systems-control using methods which are wasteful of manpower. The risk of not recognizing this danger is particularly true in government planning organizations which are often predisposed to bureaucratic and elaborately staffed organization. A system can either be adaptive and flexible or directive and rigid. In an adaptive system, information regarding damage or any environmental change would feed upwards in the system only as far as the first level at which a decision could be made to adapt to or conform to conditions. In a bureaucratic directive system the required changes to adapt to or repair any damage would have been preplanned and would be implemented by command downwards. This type of system can only work with full information gathering support and I suspect that it might be impractical in a post-attack environment. Again it would be safer and more realistic to plan for emergencies by studying the adaptive capabilities of our social organizations and to provide for adequate decision making capabilities at the bottom of the complete organization chart rather than the top.

There is another aspect of human nature and human organization which may be important. Our present complex society has evolved over millions of years and its rate of evolution has been controlled by a variety of factors. Some of these are the ability to communicate, the ability to control environment and possibly even the growth rate of the store of basic information available to the thinking processes of the individual. This social structure may well in some respects resemble a physical structure in which each added part must be supported by the strength and stability of the existing

components. Expressing this idea in a different way—if we take a physical structure apart in reverse order the components will be found to be successively stronger and more enduring. Similarly if we disassemble our social organization by nuclear war it may well be that the further we go down the scale the stronger and more enduring are the elements of the system. The fundamental elements which I have in mind are man's responces and reactions to the demands in succession of the nation, the community, the family, and finally the individual. If, in our planning, we introduce conflicts of interest between these demands we must expect that the more basic allegiances will be given higher priority by the majority of individuals.

There is one final point which I would like to mention. It may well be that the human group with the best chance of surviving any disaster is the group which believes that it can survive. This, it seems to me, is true whether it be a handful of trapped miners or a devastated nation. Going back to the previous picture of structural elements in social organization, the allegiance of the individual human members of any level of the structure to that level of the system will be in direct relationship to their confidence in its durability. Emergency planning and civil defence must take this into account. Public knowledge and assessment of nuclear risks and public confidence in emergency planning measures is an essential element in survival. The attitude that all defences are of no avail is doubly dangerous for in the event of a nuclear war it would contribute to organization disintegration just as surely as the blast and fire of the nuclear weapons. ▲

(Continued from page 7)

Unemployment Insurance Commission (National Employment Service)

(*a*) Recruited paid civilian labour for diking operations, particularly in the Metro Winnipeg area.

(*b*) Recruited by means of separate staff, relocated in Provincial EMO offices, volunteer unpaid labour for diking in the Metro Winnipeg area. (Easter weekend and school holidays).

(*c*) Provided their Emergency Planning Officer (Prairies Region) in support of the maintenance on a shift basis, of a Canada EMO desk in Flood Control HQ.

(*d*) Arranged payment of unemployment insurance to evacuees forced from their normal employment by the flood.

Canada Post Office

(*a*) Arranged by ad hoc means maintenance of postal services in isolated towns by establishment of Post Offices in box cars and temporary premises.

(*b*) Except for one location—a two day lapse—provided postal services on a nearly normal basis by special and occasional circuitous delivery routings to all affected mail centres.

(*c*) Provided Provincial Emergency Welfare Services with free change of address cards for use of evacuees on registration at reception centres and established a special control staff at District Post Office level to administer on an immediate basis.

(*d*) Co-operated with Old Age Security and Family Allowance Branch of Department of National Health and Welfare, Unemployment Insurance Commission and Department of Veterans' Affairs in the prompt and early issue of payments to evacuees and those likely to be evacuated.

Central Mortgage and Housing Corporation

(*a*) Volunteered and administered emergency lodging at Blake Gardens development in Winnipeg. This Central Mortgage and Housing Corporation project involving close to 50 one and two bedroom dwellings was supplied with heat, stoves and refrigerators to evacuees on a two-month rent-free basis.

Royal Canadian Mounted Police

(*a*) Provided extraordinary services by stand-to of the whole Division, cancellation of leave, etc., in traffic control, maintenance of law and order and boat patrols (8).

(*b*) Maintained constant liaison with Flood Control HQ in the Legislature (Winnipeg) and the rural Headquarters particularly at Morris and Emerson. ▲

Erratum

On page 24 of the April edition, Mr. Armand F. Wigglesworth's name has been inadvertently misspelled. The Editor is sorry for any inconvenience this may have caused Mr. Wigglesworth.

Editorial Opinion

"EMO TAKING ROOT"

"The part played by the Emergency Measures Organization in Manitoba during the six weeks when the Red River threatened to flood the Red River Valley has done more to enhance the image of the agency than any promotion campaign since its inception seven years ago. Thousands of military personnel, civil servants and volunteers worked under the direction of the federal organization to cope with a rampaging river bent on destruction.

According to I. H. Deyman, Regional Director for Canada EMO, "it was the best exercise in peacetime disaster since 1959, if for no other reason than that it extended over a six-week period".

The organization helped the Roseau Indian band move from their threatened reserve near Portage la Prairie; canvassed federal departments for reserve equipment when it appeared a shortage of water pumps would develop; provided storage in Canadian National Railways boxcars for homeowners' belongings where homes were threatened; provided health and welfare assistance to establish evacuee reception areas and early payment of allowances to residents of the valley, and recruited civilians for dyke work. In addition, EMO set up and manned flood control headquarters in Winnipeg and co-ordinating offices in each of the affected communities throughout the valley.

The test in Manitoba should prove to a sceptical public that EMO is not just an agency organized to serve in the event of nuclear war. Its purpose is to lend aid during any disaster—flood, fire, earthquake, tornado, etc.

Organization and promotion of EMO has not been an easy task. Apathy has been difficult to overcome—people are just not interested in taking part in an organization they feel will, in all probability, never be used. They grumble about the expenditure of public funds, affect a smile when mention is made of the possibility of nuclear or germ warfare, and turn their backs on EMO workers who plead for preparedness.

EMO can be likened to a fire department whose equipment and personnel may never be utilized. Now it is comforting to know it is available if a fire does break out.

We have heard EMO referred to as a "haven for retired army officers"; another useless organization "like the Civil Defence" from which EMO stems as a "gimmick to eat up the tax dollars". Retired armed services personnel are ideal for top positions in this agency. Their experience in man-management and organizing ability stands them in good stead in regimenting and instructing their co-workers in the facets of EMO operations. They take a lot of unfair criticism, but believe in the organization they are struggling to establish. The position of EMO co-ordinator is no job for the thin of skin.

When EMO was first organized in 1959 distribution of brochures and pamphlets was the principal means of educating the people to the need of establishing a national emergency agency. As the saying goes, you can lead a horse to water, but you can't make him drink"—people would not bother to read the literature.

Other means of educating the public have been tried, but with little success. Last year, however the Federal Government took the bull by the horns and asked municipalities to make EMO training mandatory for civic employees. This move is getting results.

EMO is making satisfactory headway in St. Thomas and Elgin County, mainly because of the dedicated efforts of E. C. Reid, city clerk-administrator and co-ordinator of EMO here, and Gordon H. Pratt a retired Army officer who is deputy co-ordinator.

EMO headquarters have been established in the basement of the St. Thomas federal building; radio relay stations have been installed at Rodney, Aylmer and Straffordville. Plans are also under way for their location in other areas of Elgin County.

It appears that EMO is making progress in formation of an effective county-wide operation. It may never be used, but like an insurance policy, it's good to have the coverage."

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